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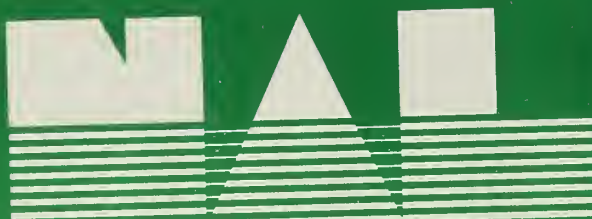
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**United States  
Department of  
Agriculture**

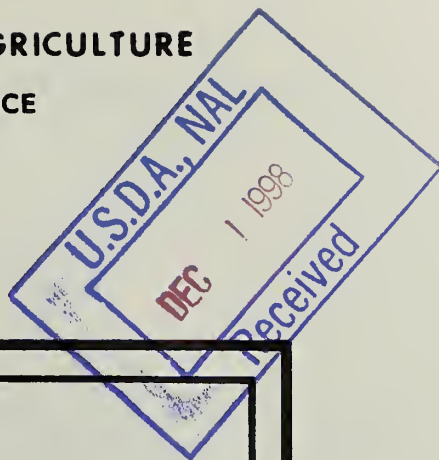


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UNITED STATES DEPARTMENT OF AGRICULTURE

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**UNITED STATES**  
**STANDARDS**  
*for grades of*  
**CANNED CARROTS**



**EFFECTIVE JULY 2, 1959**

**Fourth Issue**  
**As Amended**

These standards supersede the standards  
which have been in effect since  
February 15, 1955



This is the fourth issue, as amended, of the United States Standards for Grades of Canned Carrots. These amended standards are issued by the Department after careful consideration of all data and views submitted. They supersede the United States Standards for Grades of Canned Carrots which have been in effect since February 15, 1955.

As in the case of other standards for processed fruits and vegetables, these standards are designed to serve as a convenient basis for sales, for establishing quality control programs, and for determining loan values. They will also serve as a basis for the inspection of this commodity by Federal inspection service, which is available for the inspection of other processed products as well.

The Department welcomes suggestions which might aid in improving these standards in future revisions. Comments may be submitted to, and copies of these standards obtained from:

Chief, Processed Products Standardization  
and Inspection Branch  
Fruit and Vegetable Division  
Agricultural Marketing Service  
United States Department of Agriculture  
Washington 25, D. C.



# UNITED STATES STANDARDS FOR GRADES OF CANNED CARROTS<sup>1</sup>

Effective July 2, 1959

## IDENTITY, STYLES, AND GRADES

- 52.671 Identity.
- 52.672 Styles of canned carrots.
- 52.673 Grades of canned carrots.

## FILL OF CONTAINER AND DRAINED WEIGHTS

- 52.674 Recommended fill of container.
- 52.675 Recommended minimum drained weight.

## SIZES

- 52.676 Sizes of carrots in whole carrots.
- 52.677 Sizes of carrot slices in sliced carrots.
- 52.678 Sizes of carrot quarters in quartered carrots.

## FACTORS OF QUALITY

- 52.679 Ascertaining the grade.
- 52.680 Ascertaining the rating for the factors which are scored.
- 52.681 Color.
- 52.682 Uniformity of size and shape.
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## LOT INSPECTION AND CERTIFICATION

- 52.685 Ascertaining the grade of a lot.

## SCORE SHEET

- 52.686 Score sheet for canned carrots.

## IDENTITY, STYLES, AND GRADES

§ 52.671 *Identity*. "Canned carrots" means the canned product properly prepared from the clean, sound root of the

carrot plant as defined in the definitions and standards of identity for canned vegetables (21 CFR 52.990) issued pursuant to the Federal Food, Drug, and Cosmetic Act.

§ 52.672 *Styles of canned carrots*. (a) "Whole" or "whole carrots" means canned carrots consisting of whole carrots that retain the approximate original conformation of the whole carrot.

(b) "Slices" or "sliced carrots" means canned carrots consisting of carrot slices produced by slicing whole carrots transverse to the longitudinal axis.

(c) "Quarters" or "quartered carrots" means canned carrots consisting of quarters of carrots produced by cutting whole carrots longitudinally into four approximately equal units. Whole carrots cut longitudinally into six units approximating the size and appearance of the quartered carrots are also permitted in this style.

(d) "Diced carrots" means canned carrots consisting of units produced by cutting whole carrots into cubes having edges, other than the rounded outer edges, measuring approximately  $\frac{1}{2}$  inch or less.

(e) "Julienne," "French style," or "shoestring" means canned carrots consisting of strips of carrots.

(f) "Cut" means canned carrots consisting of units which with respect to size or shape do not conform to any of the foregoing styles. Carrots which have been cut longitudinally into two approximately equal units are included in this style.

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<sup>1</sup> Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act.

(g) "Unit" means an individual carrot or portion of a carrot in canned carrots.

§ 52.673 *Grades of canned carrots.*

(a) "U. S. Grade A" or "U. S. Fancy" is the quality of canned carrots that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a good color; that are practically free from defects; that are tender; that are practically uniform in size and shape; and that score not less than 85 points when scored in accordance with the scoring system outlined in this subpart.

(b) "U. S. Grade C" or "U. S. Standard" is the quality of canned carrots that possess similar varietal characteristics; that possess a normal flavor and odor; that possess a fairly good color; that are fairly free from defects; that are fairly tender; that are fairly uniform in size and shape; and that score not less than 70 points when scored in accordance with the scoring system outlined in this subpart.

(c) "Substandard" is the quality of canned carrots that fail to meet the requirements of U. S. Grade C or U. S. Standard.

FILL OF CONTAINER AND DRAINED WEIGHTS

§ 52.674 *Recommended fill of con-*

*tainer.* The recommended fill of container is not incorporated in the grade of the finished product since fill of container, as such, is not a factor of quality for the purpose of these grades. It is recommended that the container of canned carrots be filled as full as practicable with carrots without impairment of quality and that the product and packing medium occupy not less than 90 percent of the total capacity of the container.

§ 52.675 *Recommended minimum drained weight.* The minimum drained weight recommendations in Table No. I of this section are not incorporated in the grades of the finished product since drained weight, as such, is not a factor of quality for the purpose of these grades. The drained weight of canned carrots is determined by emptying the contents of the container upon a U. S. Standard No. 8 sieve of proper diameter so as to distribute the product evenly, inclining the sieve slightly to facilitate drainage and allowing to drain for two minutes. The drained weight is the weight of the sieve and the carrots less the weight of the dry sieve. A sieve 8 inches in diameter is used for the No. 2½ size can (401 x 411) and smaller sizes; and a sieve 12 inches in diameter is used for containers larger than the No. 2½ size can.

TABLE NO. I—RECOMMENDED MINIMUM DRAINED WEIGHTS, IN OUNCES, OF CARROTS

Container size or designation	Whole <sup>1</sup>		Sliced <sup>1</sup>		Diced	Quartered cut	Julienne
	Less than 1½ inches in diameter	1½ inches in diameter and over	Less than 1½ inches in diameter	1½ inches in diameter and over			
8-ounce tall.....	5½	5	5½	5	5½	5½	5½
8-ounce jar.....	5½	5	5½	5	5½	5½	5½
No. 1 picnic.....	6¾	6½	6¾	6½	7	7	6¾
No. 300.....	9¼	9	9½	9¼	10	10	8¾
No. 303.....	9¾	9¼	10	9½	10½	10½	9
No. 303 jar.....	9¾	9¼	10	9½	10½	10½	9
No. 2.....	12½	12¼	12½	12	12¾	12½	11½
No. 2½.....	19½	19	19	18½	19	18½	18½
No. 2½ jar.....	19¾	18¾	18¾	18¾	18¾	18¾	18
No. 10.....	69	68	69	68	72	70	68

<sup>1</sup> Mixed sizes to be based on drained weight for predominant size of individual units.



## SIZES

§ 52.676 *Sizes of carrots in whole carrots.* The size of any carrot is determined by measuring the longest diameter through the center transverse to the longitudinal axis of the carrot.

§ 52.677 *Sizes of carrot slices in sliced carrots.* The size of any slice in sliced carrots is determined by measuring the smallest diameter of the largest surface of the slice.

§ 52.678 *Sizes of carrot quarters in quartered carrots.* The size of any quarter in quartered carrots with respect to diameter is determined by measuring the largest cut surface transverse to the longitudinal axis.

## FACTORS OF QUALITY

§ 52.679 *Ascertaining the grade.* (a) The grade of canned carrots is ascertained by considering, in conjunction with the requirements of the respective grade, the respective ratings for the factors of color, uniformity of size and shape, absence of defects, and texture.

(b) The relative importance of each factor which is scored is expressed numerically on the scale of 100. The maximum number of points that may be given each such factor is:

Factors:	Points
Color .....	25
Uniformity of size and shape.....	15
Absence of defects.....	30
Texture .....	30
Total score.....	100

(c) "Normal flavor and odor" means that the canned carrots are free from objectionable flavors and objectionable odors of any kind.

§ 52.680 *Ascertaining the rating for the factors which are scored.* The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically. The numerical range for the rating of each factor is inclusive (for example, "12 to 15 points" means 12, 13, 14, or 15 points).

§ 52.681 *Color*—(a) (A) *classification.* Canned carrots that possess a good

color may be given a score of 21 to 25 points. "Good color" means that the canned carrots possess an orange-yellow color that is bright and typical of canned carrots, and that the presence of green units does not more than slightly affect the appearance or eating quality of the product.

(b) (C) *classification.* If the canned carrots possess a fairly good color, a score of 18 to 20 points may be given. Canned carrots that fall into this classification shall not be graded above U. S. Grade C or U. S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly good color" means that the canned carrots possess the typical color of canned carrots, that such color may be slightly dull but not off-color, and that the presence of green units does not materially affect the appearance or eating quality of the product.

(c) (SStd) *classification.* Canned carrots that are off-color for any reason or that fail to meet the requirements of paragraph (b) of this section may be given a score of 0 to 17 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.682 *Uniformity of size and shape*—(a) (A) *classification.* Canned carrots that are practically uniform in size and shape may be given a score of 12 to 15 points. "Practically uniform in size and shape" has the following meanings with respect to the various styles of canned carrots:

(1) *Whole carrots.* The size of the individual carrot is not more than  $1\frac{3}{4}$  inches in diameter, measured as aforesaid; the carrots may vary moderately in shape and the diameter of the largest unit is not more than 50 percent greater than the diameter of the second smallest unit.

(2) *Quartered carrots.* The carrots from which the quarters have been prepared were of a size not more than  $2\frac{1}{2}$  inches in diameter, measured as aforesaid, and the diameter of the largest quarter is not more than 50 percent greater than the diameter of the second smallest quarter, and the length of the

longest quarter is not more than 50 percent greater than the length of the second shortest quarter.

(3) *Sliced carrots.* The individual slice is not more than  $\frac{3}{8}$  inch in thickness when measured at the thickest portion; the diameter of each slice is not more than  $2\frac{1}{2}$  inches, measured as aforesaid; and of all the sliced carrots, in the 90 percent, by count, that are most uniform in diameter, the diameter of the slice with the greatest diameter does not exceed the diameter of the slice with the smallest diameter by more than 50 percent: *Provided*, That the overall appearance of the product is not materially affected.

(4) *Diced carrots.* The units are practically uniform in size and shape with edges, other than the rounded outer edges, measuring approximately  $\frac{1}{2}$  inch or less; and the aggregate weight of all units of irregular shape which are noticeably smaller than one-half the volume of an average size cube and of all noticeably large and large irregular shaped units does not exceed 12 percent of the weight of all the units.

(5) *Julienne, French style, or shoe-string.* The strips of carrots are practically uniform in size and shape, with cross sections measuring approximately  $\frac{3}{16}$  inch, and the aggregate weight of all strips less than  $\frac{1}{2}$  inch in length does not exceed 12 percent of the weight of all the strips.

(6) *Cut.* The individual units weigh not less than  $\frac{1}{4}$  ounce and the largest unit is not more than four times the weight of the second smallest unit. When cut longitudinally into two approximately equal units, the carrots from which the units have been prepared were of a size not more than  $2\frac{1}{2}$  inches in diameter, measured as aforesaid, and the weight of the largest unit is not more than 50 percent greater than the weight of the second smallest unit.

(b) (C) *classification.* If the canned carrots are fairly uniform in size and shape a score of 8 to 11 points may be given. Canned carrots that fall into this classification shall not be graded above U. S. Grade C or U. S. Standard, regard-

less of the total score for the product (this is a limiting rule). "Fairly uniform in size and shape" has the following meanings with respect to the various styles of canned carrots:

(1) *Whole carrots.* The size of the individual carrot is not more than  $2\frac{1}{4}$  inches in diameter, measured as aforesaid; the carrots may vary considerably in shape, and the diameter of the largest unit is not more than twice the diameter of the second smallest unit.

(2) *Quartered carrots.* The carrots from which the quarters have been cut were of a size not more than  $2\frac{1}{2}$  inches in diameter, measured as aforesaid, and the diameter of the largest quarter is not more than twice the diameter of the second smallest unit, and the length of the longest quarter is not more than twice the length of the second shortest quarter.

(3) *Sliced carrots.* The individual slice is not more than  $\frac{3}{8}$  inch in thickness when measured at the thickest portion; the diameter of each slice is not more than  $2\frac{1}{2}$  inches, measured as aforesaid; and of all the sliced carrots, in the 90 percent, by count, that are most uniform in diameter, the diameter of the slice with the greatest diameter is not more than twice the diameter of the slice with the smallest diameter: *Provided*, That the overall appearance of the product is not seriously affected.

(4) *Diced carrots.* The units are fairly uniform in size and shape, with edges, other than the rounded outer edges, measuring approximately  $\frac{1}{2}$  inch or less; and the aggregate weight of all units of irregular shape which are noticeably smaller than one-half the volume of an average size cube and of all noticeably large and large irregular shaped units does not exceed 25 percent of the weight of all the units.

(5) *Julienne, French style, or shoe-string.* The strips of carrots are fairly uniform in size and shape, with cross sections measuring approximately  $\frac{3}{16}$  inch and the aggregate weight of all the strips less than  $\frac{1}{2}$  inch in length does not exceed 25 percent of the weight of all the strips.



(6) *Cut*. The individual units weigh not less than  $\frac{1}{8}$  ounce and the largest unit is not more than twelve times the weight of the second smallest unit. When cut longitudinally into two approximately equal units, the carrots from which the units have been prepared were of a size not more than  $2\frac{1}{2}$  inches in diameter, measured as aforesaid, and the weight of the largest unit is not more than twice the weight of the second smallest unit.

(c) (*SStd*) *classification*. Canned carrots that fail to meet the requirements of paragraph (b) of this section may be given a score of 0 to 7 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.683 *Absence of defects*—(a) *General*. The factor of absence of defects refers to the degree of freedom from defective units. Defective units are units damaged by mechanical injury, unpeeled units, units blemished or seriously blemished by brown or black internal or external discoloration, sunburn, or green colored units, pathological injury or insect injury, and units blemished or seriously blemished by other means.

(1) "Damaged by mechanical injury" means crushed, broken, or cracked units, units with excessively frayed edges and surfaces, excessively trimmed units, or damaged by other means.

(2) "Unpeeled unit" means any unit possessing an unpeeled area greater than the area of a circle  $\frac{1}{4}$  inch in diameter.

(3) "Blemished" means any unit blemished to the extent that the appearance or eating quality is materially affected.

(4) "Seriously blemished" means any unit blemished to the extent that the appearance or eating quality is seriously affected.

(b) (A) *classification*. Canned carrots that are practically free from defects may be given a score of 26 to 30 points. "Practically free from defects" has the following meanings with respect to the various styles of canned carrots:

(1) *Whole carrots*. The aggregate

weight of all defective units does not exceed 15 percent of the weight of all the units, and of such 15 percent not more than  $\frac{1}{2}$  thereof or one carrot, whichever weighs more, may consist of blemished units and seriously blemished units: *Provided*, That not more than 1 percent, by weight, of all the units may be seriously blemished and that the presence of blemished and seriously blemished units does not more than slightly affect the appearance or eating quality of the product.

(2) *Sliced, quartered, and cut carrots*. The aggregate weight of all defective units does not exceed 15 percent of the weight of all the units, and of such 15 percent not more than  $\frac{1}{2}$  thereof or one slice, quarter or cut, whichever weighs more, may consist of blemished units and seriously blemished units: *Provided*, That not more than 1 percent, by weight, of all the units may be seriously blemished, and that the presence of blemished and seriously blemished units does not more than slightly affect the appearance or eating quality of the product.

(3) *Diced, Julienne, French style, or shoestring carrots*. The aggregate weight of all defective units does not exceed 10 percent of the weight of all the units and of such 10 percent not more than  $\frac{1}{2}$  thereof may consist of blemished units and seriously blemished units: *Provided*, That not more than 1 percent, by weight, of all the units may be seriously blemished, and that the presence of blemished and seriously blemished units does not more than slightly affect the appearance or eating quality of the product.

(c) (C) *classification*. Canned carrots that are fairly free from defects may be given a score of 22 to 25 points. Canned carrots that fall into this classification shall not be graded above U. S. Grade C or U. S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly free from defects" has the following meanings with respect to the various styles of

canned carrots:

(1) *Whole carrots.* The aggregate weight of all defective units does not exceed 25 percent of the weight of all the units, and of such 25 percent, not more than  $\frac{1}{2}$  thereof may consist of blemished units and seriously blemished units: *Provided*, That not more than 2 percent, by weight, of all the units may be seriously blemished, and that the presence of blemished and seriously blemished units does not seriously affect the appearance or eating quality of the product.

(2) *Sliced, quartered, and cut carrots.* The aggregate weight of all defective units does not exceed 25 percent of the weight of all the units, and of such 25 percent not more than  $\frac{1}{2}$  thereof may consist of blemished units and seriously blemished units: *Provided*, That not more than 2 percent, by weight, of all the units may be seriously blemished, and that the presence of blemished and seriously blemished units does not seriously affect the appearance or eating quality of the product.

(3) *Diced, Julienne, French style, or shoestring carrots.* The aggregate weight of all defective units does not exceed 20 percent of the weight of all the units, and of such 20 percent not more than  $\frac{1}{2}$  thereof may consist of blemished units and seriously blemished units: *Provided*, That not more than 2 percent, by weight, of all the units may be seriously blemished, and that the presence of blemished and seriously blemished units does not seriously affect the appearance or eating quality of the product.

(d) (*SStd*) *classification.* Canned carrots that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 21 points

and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

§ 52.684 *Texture*—(a) *General.* The factor of texture refers to the tenderness of the carrots and the degree of freedom from coarse and fibrous units.

(b) (*A*) *classification.* Canned carrots that possess a tender texture may be given a score of 26 to 30 points. "Tender texture" means that the carrots are tender and firm but not fibrous, and possess a practically uniform texture.

(c) (*C*) *classification.* If the canned carrots possess a fairly tender texture, a score of 22 to 25 points may be given. Canned carrots that fall into this classification shall not be graded above U. S. Grade C or U. S. Standard, regardless of the total score for the product (this is a limiting rule). "Fairly tender texture" means that the carrots are fairly tender, may be variable in texture but not soft or mushy, tough or hard, and there may be present a few units which possess a coarse or fibrous texture.

(d) (*SStd*) *classification.* Canned carrots that fail to meet the requirements of paragraph (c) of this section may be given a score of 0 to 21 points and shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).

#### LOT INSPECTION AND CERTIFICATION

§ 52.685 *Ascertaining the grade of a lot.* The grade of a lot of canned carrots covered by these standards is determined by the procedures set forth in the Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products (§§ 52.1 through 52.87; 22 F. R. 3535).



## SCORE SHEET

§ 52.686 *Score sheet for canned carrots.*

Number, size, and kind of container.....	
Container mark or identification.....	
Label.....	
Net weight (ounces).....	
Vacuum (inches).....	
Drained weight (ounces).....	
Style.....	
Size of whole carrots (count).....	
Size of sliced carrots (diameter).....	

Factors	Score points		
Color.....	25	{	(A) 21-25 (C) <sup>1</sup> 18-20 (S Std.) <sup>1</sup> 0-17
Uniformity of size and shape..	15	{	(A) 12-15 (C) <sup>1</sup> 8-11 (S Std.) <sup>1</sup> 0-7
Absence of defects.....	30	{	(A) 26-30 (C) <sup>1</sup> 22-25 (S Std.) <sup>1</sup> 0-21
Texture.....	30	{	(A) 26-30 (C) <sup>1</sup> 22-25 (S Std.) <sup>1</sup> 0-21
Total score.....	100		

Normal flavor and odor.....	
Grade.....	

<sup>1</sup> Indicates limiting rule.

*Recodified in the Federal Register December 9, 1953 (18 F.R. 7949)*  
*Amendment published in the Federal Register January 15, 1955,*  
*to become effective February 15, 1955 (20 F.R. 363)*  
*Amended in the Federal Register July 2, 1959 (24 F.R. 5363)*









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